

## REMARKS

A Request for Extension of Time accompanies this paper.

In this paper, claims 4, 6-8, 10-12, 15-17, 19, 23, 25, and 27-29 have been amended. Claims 1-29 remain in the application.

The amendments to claims 6, 7, 10, 17, and 23 are merely formal and do not narrow the scope of any one of those claims. These amendments are made to correct manifest informalities of grammar or syntax.

The amendments to claims 4, 8, 11, and 12 merely adjust dependency and provide antecedent basis for terms in those claims. These amendments correct errors introduced when automatic word processing failed to change dependency as the claims evolved during drafting. These errors were manifest and these amendments remove them and make explicit what was implicit in these claims before amendment.

The amendments to claims 15, 16, 19, and 25 and 27-29 merely add terms that point to antecedent basis provided by claims from which they depend, or which depend from them. They are formal and make manifest what was evident, but implicit, before amendment.

Objection is made in the Official Action to claims 1 and 20. The basis for objection to claim 1 is for the form of spelling the past tense of the verb "focus" as "focussed". In fact, the definition of "focus" in *Riverside Webster's II New College Dictionary* shows one form of the verb spelt identically. The first basis for objection to claim 20 is for an incorrect grammatical usage of the term "position" in line 2 of the claim. No instance of any form of the word "position" appears in the claim. The second basis for objection to claim 20 is for use of the term "display" in line 2. In fact, the noun form of "display" is defined in the *Riverside* dictionary as "the act of displaying". Accordingly, the spelling of "focused" in claim 1 is correct, the usage of "display" in claim 20 is correct, and the Examiner is requested to withdraw this objection.

Claim 1 is rejected for indefiniteness on the basis that selection optics are limited to being "positioned between" a sample volume and a plurality of detectors. The Applicants respectfully disagree. The rejection presumes that the term is limited to a single meaning: the selection optics must be "physically located between" the sample volume and the detectors (Office Action, paragraph 6, lines 3-6). It is presumed that this means the selection optics must be on a straight line connecting the sample volume with the plurality of detectors, intermediate the sample volume and detectors. There is no basis in the specification, or in the common usages and meanings of the phrase "positioned between" for such a narrow, constrained interpretation. Indeed, as pointed out in the Office Action, Fig. 1A of the specification shows the selection optics being positioned "along the optical path B ...". It is noted that the "optical path

B" connects the sample volume with the plurality of detectors. This conforms with one of the definitions of "between" in the *Riverside* dictionary, that is "connecting spatially". Thus, as Fig. 1A shows, the selection optics are on an optical pathway or route that spatially connects the sample volume and the plurality of detectors. Therefore, the selection optics are indeed "positioned between" the plurality of detectors and the sample volume. However, that is not to say that this is the only meaning of the phrase in this application, and in claim 1. Indeed, as pointed out in the Office Action, the phrase in claim 1 may have other meanings, including "physically located between". Accordingly, the applicants respectfully request withdrawal of this rejection.

Claims 4, 6, 7, 8, 10, 11, 13, 15, 16, 19, 23, 25, 28, and 29 have been rejected for indefiniteness on various bases. It is submitted that amendments made in this paper have removed all of these bases, and the applicants respectfully request withdrawal of this rejection.

Claims 1, 2, 4-10, 12, 16, 17, and 24 are rejected for anticipation by US Patent No. 6,024,283 ("Campanelli"). That rejection is respectfully traversed for the following reasons.

Axiomatically, rejection of a claim for anticipation by a reference requires that the reference explicitly include, in its four corners, all elements or steps, and all limitations thereof recited in the rejected claim. Any subject matter of the claim that is missing from the reference is inherent in the reference only if extrinsic evidence clearly shows that the missing subject matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill. Furthermore, to anticipate a claim, a reference must enable the claimed subject matter.

Taking claim 1 as representative, a system for imaging a sample is claimed. The system includes "a plurality of detectors which are each focussed at a respective focal plane in a sample volume ...". The light selection optics transmit light "originating at the respective focal planes while screening out light which originates from outside of the respective focal planes." As a result, "a three dimensional image of the sample can be obtained by combining the image from each detector." Specification, P. 4, ll. 12-14. Similar limitations are found in claim 24. At C. 8, ll. 32-35 of Campanelli, the elements read "a symbol located at a distance from the reader ...". But, where is such a symbol located? According to Campanelli at C. 1, ll. 27-29, such indicia appear "on a label or on the surface of an article." Campanelli essentially wants a single, planar, two dimensional picture. Therefore, in Campanelli there is no "sample volume", and there are no "focal planes in a sample volume". Accordingly, Campanelli omits subject matter that is explicitly recited in claims 1 and 24, and in claims 2, 4-10, 12, 16, and 17, which depend from claim 1.

If the "sample volume" and the respective focal planes "in a sample volume" are considered to be inherent, the applicants respectfully request the introduction of extrinsic evidence which clearly shows that the missing subject matter is necessarily present in the bar code reader described in Campanelli and that it would be so recognized by persons of ordinary skill.

A It is further noted that the passage of Campanelli cited to support the rejection of claims 1 and 24, and the associated figure (FIG. 3c) does <sup>not</sup> set forth a sample volume. Instead, there is only a planar bar code 37 through which light beams are focussed by a lens 38 at different distances. The distances are evidently available in order to provide manual or automatic selection of "a focal plane of interest ...". Campanelli, C. 8, ll. 27-29. So, evidently, Campanelli enables the selection of "a" (single) focal plane. There is no description in connection with this passage, or any illustration in FIG. 3c of Campanelli, that enables "transmitting to the detectors a portion of light originating at the respective focal planes while screening out light which originates from outside of the respective focal planes." Further, Campanelli at C. 8, ll. 23-42, and in FIG. 3c, does not teach or show how a plurality of detectors can be "focussed at a respective focal plane in a sample volume". Campanelli describes only one detector in this context at C. 8, ll. 14, 15. But, the "detector 38" is nowhere illustrated (reference numeral 38 in FIG. 3 denominates a lens) or further described. Accordingly, Campanelli does not enable the subject matter of the rejected claims.

In view of a failure to include all of the subject matter of, and a failure to enable, claims 1, 2, 4-10, 12, 16, 17, and 24, Campanelli does not anticipate these claims.

Claims 3, 11, 13-15, and 18 are rejected for obviousness over Campanelli. That rejection is respectfully traversed for the following reasons.

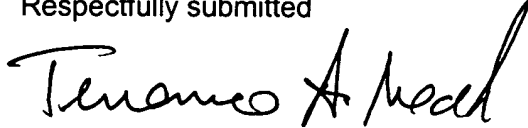
*Prima facie*, rejection of a claim for obviousness over a modified reference requires a teaching or suggestion to modify the reference as proposed in the rejection, a reasonable expectation of success, and inclusion in the modified reference of all elements or steps, and limitations thereof recited in the claim. See MPEP 2142, *et seq.*

As already set forth above, Campanelli omits a "sample volume" and respective focal planes "in a sample volume". These limitations are not suggested by Campanelli. Campanelli's problem is to acquire a single, two-dimensional image of a symbol appearing on a label or a surface. The rejected claims are directed to the problem of acquiring an image of a sample volume-a three dimensional object. Accordingly, Campanelli does not satisfy the requirements of *prima facie* obviousness.

In view of the remarks made in this paper, it is submitted that all of the claims define subject matter that is patentably distinct from the references of record, early notice of which is earnestly requested.

Enclosed is a check in the amount of \$460.00 for the three (3) month extension of time fee for a small entity. The Commissioner is hereby authorized to charge any fees that may be associated with this communication, or credit any overpayment to Deposit Account No. 50-2258. A duplicate copy of this sheet is enclosed.

Respectfully submitted

  
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## VERSION WITH MARKINGS TO SHOW CHANGES MADE

### In the claims:

4. (Amended) The system of claim [1] 2, wherein the ON regions can be controllably changed to OFF regions and the OFF regions can be controllably changed to ON regions.
6. (Amended) The system of claim 4, wherein a pattern of ON and OFF regions controls [the] a degree of confocality provided to the view from each detector.
7. (Amended) The system of claim 4, wherein the light selection optics concurrently provide [the] a degree of confocality to each of the detectors in the plurality of detectors.
8. (Amended) The system of claim [1] 2, wherein the light selection optics includes a plurality of mirrors which can occupy an ON position or an OFF position, the ON regions transmitting the light from the respective focal planes and the OFF regions blocking the light from the respective focal planes.
10. (Amended) The system of claim 1, further comprising:  
focus differentiation optics which causes each detector to be focussed at [the] different depths within the sample.
11. (Amended) The system of claim [9] 10, wherein the focus differentiation optics can be adjusted so as to alter where a detector is focussed within the sample.
12. (Amended) The system of claim [9] 10, wherein each detector is positioned equidistant from the focus differentiation optics.
15. (Amended) The system of claim 1, further comprising:  
a light source and optics configured to illuminate the sample volume with a light which causes a dye in the sample to fluoresce.
16. (Amended) The system of claim 1, further comprising:

a light source and optics configured to illuminate the sample volume and transfer reflected light from the sample to the detectors.

17. (Amended) The system of claim 1, further comprising:  
relay optics positioned ed between the light selection optics and the detectors.
19. (Amended) The system of claim 1, further comprising:  
a sample fixture for holding the sample volume being viewed, the sample fixture configured to scan the sample relative to the light selection optics.
23. (Amended) The system of claim 1, wherein the selection optics increase [the] a ratio of intensity of light received at the detector which originates from the associated focal plane to the intensity of light received at the detector which originates from outside the associated focal plane.
25. (Amended) The method of claim 24, further comprising:  
moving the sample volume so at least a portion of the sample volume is scanned by the detectors.
27. (Amended) The method of claim [24] 26, further comprising:  
filtering the output from each detector to provide a filtered 3D image [filtered output].
28. (Amended) The method of claim 27 further comprising utilizing the processing, display and storage system to segment the 3D image into 3D object segments.
29. (Amended) The method of claim 28 utilizing the processing, display and storage system to classify [the] objects into types of objects based on measurements processed from the 3D object segments.

# Webster's II

*New College Dictionary*



Houghton Mifflin Company

*Boston • New York*

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from town, is considered by many to be unacceptable in formal style.  
— *n.* 1. Something better. 2. A superior, as in position or intelligence.  
— *v.* -tered, -ter-ing, -ters. — *vt.* 1. To improve <bettered my position in life> 2. To surpass; exceed. — *vi.* To become better.

**bet-ter** (bét'ar) *n.* var. of BETTOR.

**better half** *n.* (< my better half, the larger part of me, that is, a close friend.) Informal. One's spouse.

**bet-ter-ment** (bét'ar-mənt) *n.* 1. An improvement. 2. An improvement that repairs real property and adds to its value.

**bet-ter-off** (bét'ar-ôf', -ôf') *adj.* Being in a better or more prosperous condition.

**bet-tor** also **bet-ter** (bét'ar) *n.* One who bets.

**be-tween** (bi-twēn') *prep.* [ME *betwene* < OE *betwēonum*.] 1. *a.* In the interval or position separating <between the buildings>, <between Thanksgiving and Christmas> *b.* Intermediate to, as in quantity, amount, or degree <measures between four and five feet> 2. Connecting spatially <a route between Dallas and Fort Worth> 3. *a.* By the combined effect or effort of <Between the sun and wind, the wash dried> *b.* In the combined ownership of <They had a controlling interest between them> 4. As measured against. — Used often to express a reciprocal relationship <choose between swimming and tennis> — **between you and me.** In strictest confidence. — **in be-tween.** In an intermediate situation. — **be-tween'ly** *adv.*

**be-tween-times** (bi-twēn'timz') *adv.* At or during pauses.

**be-twixt** (bi-twixt') *adv.* *or prep.* [ME < OE *betwix*.] Archaic. Between. — **betwixt and between.** In an intermediate position.

**Beu-lah** (byoo'la) *n.* 1. The land of Israel in the Old Testament. 2. The land of peace in Bunyan's *Pilgrim's Progress*.

**be-v-a-tron** (bév'a-trōn') *n.* [B(ILLION) + E(LECTRON) + V(OLTS) + -TRON.] Physics. A proton synchrotron.

**be-vel** (bév'al) *n.* [Ofr. \**bevel* < baif, open-mouthed < bayer, to gape.] 1. The angle or inclination of a surface or line that meets another at any angle but 90°. 2. A rule having an adjustable arm used to draw or measure angles or to fix a surface at an angle. — *v.* -eled, -el-ing, -els or -elled, -el-ing, -els. — *vt.* To cut at an inclination that forms an angle other than a right angle. — *vi.* To be inclined; SLOPE.

**be-vel gear** *n.* Either of a pair of gears having teeth surfaces cut so that the gear shafts are not parallel.

**be-ve-r-age** (bév'ar-ij, -bév'rij) *n.* [ME *beverage* < Ofr. *bevrage* < *beivre*, to drink < Lat. *biber*.] A liquid for drinking, usu. excluding water.

**be-v-y** (bév'y) *n., pl. -ies*. [ME.] 1. A group of birds or animals, esp. larks or quail; FLOCK. 2. A group; assemblage.

**be-wail** (bi-wāl') *vt.* -wailed, -wail-ing, -wails. 1. To express sorrow or regret over. 2. To cry about. — **be-wail'er** *n.*

**be-ware** (bi-wār') *v.* -wared, -war-ing, -wares. [ME *be ware*: *be*, imper. of *been*, to be + *ware*, on one's guard (< OE *wær*).] — *vt.* To be cautious of. — *vi.* To be cautious.

**be-whis-kered** (bi-hwis'kard, -wis'-) *adj.* Having whiskers.

**be-wil-der** (bi-wil'dar) *vt.* -dered, -der-ing, -ders. 1. To befuddle or confuse, esp. with a variety of conflicting situations, objects, or statements. 2. To cause to lose one's bearings. — **be-wil'dered-ly** *adv.* — **be-wil'dered-ness** *n.* — **be-wil'der-ing-ly** *adv.* — **be-wil'der-ment** *n.*

**be-witch** (bi-wich') *vt.* -witched, -witch-ing, -witch-es. [ME *bewicchen*: *be*, thoroughly + *wicchen*, to enchant < OE *wiccian* < *wicca*, witch and *wicce*, wizard.] To place under one's power by or as if by magic: captivate totally. — **be-witch'er-y** *n.* — **be-witch'-ing** *adj.* — **be-witch'-ing-ly** *adv.*

**be-witch-ing** (bi-wich'ing) *adj.* Enchanting as if with a magic spell; FASCINATING. — **be-witch'-ing-ly** *adv.*

**be-witch-ment** (bi-wich'mənt) *n.* 1. The act of bewitching or the state of being bewitched. 2. A spell that bewitches.

**be-wray** (bi-rā') *vt.* -wrayed, -wray-ing, -wrays. [ME *bewreien*: *be*, thoroughly + *wreien*, to accuse < OE *wreagan*.] Archaic. To disclose, esp. unintentionally; BETRAY.

**bey** (bā) *n.* [Turk.] 1. A provincial governor in the Ottoman Empire. 2. A ruler of the former kingdom of Tunis. 3. A Turkish title of honor and respect.

**be-yond** (bē-ōnd', bi-yōnd') *prep.* [ME < OE *begeondan*.] 1. On the far side of: PAST. 2. Later than. 3. Past the understanding, reach, or scope of <cruelty beyond words> 4. To a degree or amount greater than <rich beyond my wildest hopes> 5. In addition to <sought nothing beyond bread and shelter> — **be-yond'ly** *adv.*

**bez-ant** (bēz'ant, ba-zānt') [ME *besant* < Ofr. < Lat. *Byzantius*, of Byzantium.] 1. A gold coin issued in Byzantium: SOLIDUS. 2. A flat disk used as an architectural decoration.

**bez-el** (bēz'al) *n.* [Orig. unknown.] 1. A slanting surface or bevel on the edge of a cutting tool. 2. The upper, faceted portion of a cut gem above the girdle. 3. A groove or flange that holds a beveled edge, as of a watch crystal or a gem.

**be-zique** (bā-zēk') *n.* [Fr. *bésique*.] A card game similar to pinochle that is played with a deck of 64 cards.

**be-zoar** (bē'zōr', -zōr') *n.* [ME *bezar* < Ofr. *bezar* < Ar. *bāzahr* < Pers. *pād-zahr*: *pād*, protecting against + *zahr*, poison.] A hard gastric or intestinal mass found chiefly in ruminants and once regarded as a magical antidote to poison.

**B-girl** (bē'gūrl') *n.* [B(AR) + GIRL.] A woman who works in a bar and encourages customers to spend money freely.

**Bha-ga-vad-Gi-tā** (bā'gā-vād-gē'tā) *n.* [Skt. *bhagavad-gītā*, song of the blessed one (Krishna).] A sacred Hindu text that is part of the *Mahabharata*, an ancient Sanskrit epic.

**hang** also **hang** (hāng) *n.* [Hindi *hāng* < Skt. *bhaṅgā*.] 1. The hemp plant. 2. Any of several narcotics made from the dried flowers and leaves of hemp.

**Bhu-tan-ese** (bōo'tā-nēz', -nēs') *n., pl. Bhutanese.* 1. A native or inhabitant of Bhutan. 2. The Sino-Tibetan language of Bhutan. — *adj.* Of or characteristic of Bhutan, its people, or their culture and language.

**bi- or bin-** *pref.* [Lat. < *bis*, twice.] 1. *a.* Two <biform> *b.* Both <binaural> *c.* Both sides, parts, or directions <biconcave> 2. *a.* Occurring at intervals of two <bicentennial> *b.* Occurring twice during <biweekly> 3. *a.* Containing twice the proportion of a specified chemical element or group necessary for stability <bicarbonate> *b.* Containing two chemical atoms, radicals, or groups <biphenyl>

**bi-** *pref. var. of BIO-*

**Bi** symbol for BISMUTH.

**bi-a-ly** (bē-ā'lē) *n., pl. -lys.* [After *Bialystok*, Poland.] A round, flat baked roll with onion flakes on top.

**bi-an-nu-al** (bi-ān'yōo-əl) *adj.* Happening twice each year: SEMI-ANNUAL. — **bi-an'nu-al-ly** *adv.*

**bi-as** (bi'as) *n.* [Ofr. *biais*, oblique.] 1. A line cutting diagonally across the grain of fabric. 2. *a.* An inclination or preference, esp. one that interferes with impartial judgment: PREJUDICE. *b.* A specified instance of this. 3. *a.* An irregularity or weight in a ball that causes it to swerve, as in lawn bowling. *b.* The tendency of such a ball to swerve. 4. The fixed voltage applied to an electrode. — *vt.* -ased, -as-ing, -as-es or -assed, -as-sing, -as-ses. 1. To cause to have a prejudiced view. 2. To apply a small voltage to (a grid).

\* **syns:** BIAS, PARTIALITY, PREJUDICE, PREPOSSESSION *n. core mean-ing:* an inclination for or against that inhibits impartial judgment <a decision influenced by personal bias>

**bi-ased** also **bi-ased** (bi'ast) *adj.* Marked by bias.

**bi-ath-lon** (bi-āth'lōn, -lōn') *n.* [B(ATHLON) + Gk. *athlon*, contest.] An athletic competition that combines cross-country skiing and rifle shoot-ing.

**bi-ax-i-al** (bi-āk'sē-əl) *adj.* Having two axes. — **bi-ax'i-al-ly** *adv.*

**bib** (bib) *n.* [Prob. < ME *bibben*, to drink, perh. < Lat. *bibere*.] 1. A napkin tied under the chin and worn, esp. by young children, to protect the clothing while eating. 2. The part of an apron or overalls covering the chest. — *v.* -bibbed, -bib-bing, -bibs. — *vt.* To drink; imbibe. — *vi.* To indulge in drinking: TIPPLE.

**bib and tucker** *n.* Informal. Clothing.

**bibb** (bib) *n.* [Alteration of BIB.] 1. A bracket supporting the trestle-trees on a ship's mast. 2. A bibcock.

**bib-ber** (bib'ar) *n.* [< BIB.] A tippler.

**Bibb lettuce** (bib) *n.* [After Jack Bibb, 19th-cent. American vegeta-ble grower.] A lettuce forming a small, loose head and having tender, dark-green leaves.

**bib-cock** (bib'kōk') *n.* A faucet with a nozzle that bends downward.  
**bi-be-lot** (bē'bā-lō', bē-blō') *n.* [Fr. < Ofr. *beubelet*, from a redup. of *bel*, beautiful < Lat. *bellus*, handsome.] A small ornamental object; TRINKET.

**Bi-ble** (bi'bal) *n.* [ME < Ofr. < Med. Lat. *biblia* < Gk., pl. of *biblion*, book < *biblos*, papyrus < *Bublos*, a Phoenician port.] 1. *a.* The sacred book of Christianity, including both the Old Testament and the New Testament. *b.* The Old Testament, the sacred book of Judaism. *c.* A specific copy of a Bible <their own Bible> *d.* A book or collection of writings comprising the sacred text of a religion. 2. **bible.** A book held to be authoritative in its field <the bible of Japanese cooking>

**Bible Belt** *n.* Sections of the United States, esp. in the South and Middle West, where Protestant fundamentalism prevails.

**bib-li-cal** also **Bib-li-cal** (bib'li-kəl) *adj.* [Med. Lat. *biblicus* < *biblia*, Bible.] 1. Of, relating to, or contained in the Bible. 2. Being in keeping with the nature of the Bible, esp.: *a.* Suggestive of the people or times depicted in the Bible. *b.* Suggestive of the prose or narrative style of the King James Bible. — **Bib'li-cal-ly** *adv.*

**Bib-li-cist** (bib'li-sist) *n.* 1. An expert on the Bible. 2. A literal in-terpreter of the Bible. — **Bib'li-cism** *n.*

**biblio-** *pref.* [< Gk. *biblion*, book. — see BIBLE.] Book <bibliophile>

**bib-li-o-film** (bib'li-ō-film') *n.* Microfilm used esp. to photograph book pages.

**bib-li-og-ra-pher** (bib'li-ōg'rā-fər) *n.* 1. An expert in the descrip-tion and cataloguing of printed matter. 2. A compiler of a bibliography or bibliographies.

**bib-li-og-ra-phy** (bib'li-ōg'rā-fē) *n., pl. -phies.* 1. *a.* A list of the works of a specific author or publisher. *b.* A list of writings on a single subject. 2. Description and identification of the editions, dates of is-sue, authorship, and typography of written material, as books.

ā pat ā pay ā care ā father ē pet ē be hw which ī pit  
ī tie īr pier ō pot ō toe ō paw, for oi noise ōō took

**dis-mis-sion** (dis-mish'ən) *n.* Dismissal.  
**dis-mis-sive** (dis-mis'iv) *adj.* 1. Serving to dismiss. 2. Showing indifference or disregard <a dismissive shrug>  
**dis-mount** (dis-mount') *v.* -mount-ed, -mount-ing, -mounts. -*vi.* To get off or down, as from a horse or bicycle: ALIGHT. -*vt.* 1. To remove from a mounting, setting, or support. 2. To unseat, as from a horse. 3. To disassemble (a mechanism). -*n.* (dis'mount'). The act or manner of dismounting esp. from a horse.  
**dis-mount'a-ble** *adj.*  
**dis-o-be-di-ence** (dis'ə-bē'dē-əns) *n.* Failure or refusal to obey.  
**dis'o-be'di-ent** *adj.* -**dis'o-be'di-ent-ly** *adv.*  
**dis-o-bey** (dis'ə-bā') *v.* -beyed, -bey-ing, -beys. [ME *disobeien* < OFr. *desobeir* < VLat. \**disobedire*: Lat. *dis*, not + Lat. *oboedire*, to obey. -*see* OBEY.] -*vi.* To refuse or fail to obey an order or rule. -*vt.* To refuse or fail to obey. -**dis'o-bey'er** *n.*  
**dis-o-blige** (dis'ə-blij') *vt.* -bliged, -blig-ing, -blig-es. 1. To neglect or refuse to act in accord with the wishes of. 2. To offend, as by slighting. 3. To inconvenience. -**dis'o-blig'ing-ly** *adv.*  
**dis-or-der** (dis'ər'dər) *n.* 1. Lack of order or regular arrangement: CONFUSION. 2. A breach of civic order or peace: public disturbance. 3. An ailment that affects normal, healthy functioning. -*vt.* -dered, -der-ing, -ders. 1. To throw into disorder or confusion. 2. To disturb the normal physical or mental health of: DERANGE.  
**dis-or-dered** (dis'ər'dərd) *adj.* 1. In a condition of disorder: DISARRANGED. 2. Physically or mentally ill: DERANGED. -**dis-or'-dered-ly** *adv.* -**dis-or'-dered-ness** *n.*  
**dis-or-der-ly** (dis'ər'dər-lē) *adj.* 1. Lacking regular or logical order or arrangement. 2. Not disciplined: UNRULY. 3. Disturbing the public peace or decorum. -**dis-or'-der-li-ness** *n.*  
★ **syns:** 1. DISORDERLY, MESSY, UNSYSTEMATIC *adj.* core meaning: lacking regular, logical order <a disorderly room full of junk> **ant:** ORDERLY 2. DISORDERLY, RIOTOUS, ROWDY, UNRULY *adj.* core meaning: upsetting civil order or the peace <a disorderly mob>  
**disorderly conduct** *n.* Law. A petty offense involving a disturbance of public peace or decorum.  
**dis-or-gan-ize** (dis'ər'gə-nīz') *vt.* -ized, -iz-ing, -iz-es. To destroy the organization, structure, or unity of. -**dis-or'gan-i-za-tion** *n.* -**dis-or'gan-ized** *adj.*  
**dis-o-ri-ent** (dis'ər'i-ent', -ōr'i-) *vt.* -ent-ed, -ent-ing, -ents. To cause to lose one's sense of direction, position, or relationship with one's surroundings. -**dis-o'ri-en-ta-tion** *n.*  
**dis-own** (dis'ōn') *vt.* -owned, -own-ing, -owns. To refuse to claim or accept as one's own: REPUDIATE.  
**dis-par-age** (di-spār'ij) *vt.* -aged, -ag-ing, -ag-es. [ME *disparagen*, to degrade < OFr. *desparager*: *des*, apart (< Lat. *dis*) + *parage*, rank < *per*, peer. -*see* PEER.] 1. To speak of in a belittling way: DECRY. 2. To reduce in rank or esteem. -**dis-par'age-ment** *n.* -**dis-par'ag-er** *n.* -**dis-par'ag-ing-ly** *adv.*  
**dis-pa-rate** (di-spār'it, di-spār'it) *adj.* [Lat. *disparatus*, p.p. of *disparare*, to separate: *dis*, apart + *parare*, to prepare.] Completely dissimilar. -**dis'pa-rate-ly** *adv.* -**dis'pa-rate-ness** *n.*  
**dis-par-i-ty** (di-spār'i-tē) *n.*, pl. -ties. [OFr. *disparite* < LLat. *disparitas*: Lat. *dis*, not + Lat. *paritas*, equality < *par*, equal.] 1. The condition or fact of being unequal in age, rank, or degree: DIFFERENCE. 2. Incongruity or unlikeness.  
**dis-pas-sion** (dis-pāsh'ən) *n.* Freedom from passion, bias, or emotion: OBJECTIVITY.  
**dis-pas-sion-ate** (dis-pāsh'ə-nit) *adj.* Devoid of or unaffected by passion, bias, or emotion: OBJECTIVE <a dispassionate ruling> -**dis-pas'sion-ate-ly** *adv.* -**dis-pas'sion-ate-ness** *n.*  
**dis-patch** also **des-patch** (di-spāch') [Sp. *despachar* or Ital. *dis-pacciare*, both < OFr. *despécher*, to set free: *des*, apart (< Lat. *dis*) + (*em*)*pechier*, to hinder < LLat. *impedicare*, to entangle (Lat. *in*, in + Lat. *pedica*, shackle).] -*vt.* -patched, -patch-ing, -patches. 1. To send off to a particular destination or on specific business. 2. To finish or deal with promptly. 3. To put to death summarily. -*n.* 1. The act of sending off. 2. The act of putting to death. 3. Speed in movement or performance: HASTE. 4. A written message, esp. an official communication, sent with speed. 5. An item sent to a news organization, as by a correspondent.  
**dis-patch-er** (di-spāch'ər) *n.* 1. One that dispatches. 2. One who sends out trains, buses, trucks, or taxis according to a schedule. 3. Computer Sci. A routine that controls the order in which input and output devices obtain access to the processing system.  
**dis-pel** (di-spēl') *v.* -pelled, -pel-ing, -pels. [ME *dispellen* < Lat. *dispellere*: *dis*, apart + *pellere*, to drive.] -*vt.* 1. To rid one's mind of <dispel all fears> 2. To cause to go in various directions: SCATTER. -*vi.* To disappear by or as if by rising: DISSIPATE.  
**dis-pen-sa-ble** (di-spēn'sə-bəl) *adj.* 1. Not essential; unimportant. 2. Capable of being dispensed, administered, or distributed. 3. Subject to dispensation, as a vow or church law. -**dis-pen'sa-bil'i-ty**, **dis-pen'sa-ble-ness** *n.*  
**dis-pen-sa-ry** (di-spēn'sə-rē) *n.*, pl. -ries. 1. An office in an institution, as a hospital or school, from which medical supplies and preparations are dispensed. 2. A public institution that dispenses medicines or medical care.  
**dis-pen-sa-tion** (di-spēn-sā'shən, -pēn-) *n.* 1. The act of dispens-

ing. 2. Something dispensed. 3. A specific system or arrangement by which something is dispensed or administered. 4. An exemption or release from an obligation or rule, granted by or as if by an authority. 5. a. An exemption from an obligation, as a church law or vow, granted in a particular case by an ecclesiastical authority. b. The document containing this exemption. -**dis'pen-sa-tion-al** *adj.*  
**dis-pen-sa-to-ry** (di-spēn'sə-tōr'ē, -tōr'ē) *n.*, pl. -ries. 1. A book in which the preparation, uses, and contents of medicines are described: PHARMACOPOEIA. 2. Archaic. A dispensary.  
**dis-pense** (di-spēns') *v.* -pensed, -pens-ing, -pens-es. [ME *dispensen* < Med. Lat. *dispensare*, to exempt < Lat., to distribute, freq. of *dispendere*, to weigh out: *dis*, apart + *pendere*, to weigh.] -*vt.* 1. To distribute in portions or parts. 2. To prepare and give out (medicines). 3. To administer (e.g., laws). 4. To release or exempt, as from a duty or religious obligation. -*vi.* To grant dispensation or exemption. -**dis-pense with**. 1. To forgo. 2. To dispose of.  
**dis-pens-er** (di-spēn'sər) *n.* One that dispenses, esp. a machine or container that allows the contents to be taken out and used in convenient or prescribed amounts <a cup dispenser>  
**dis-peo-ple** (dis-pē'pl) *vt.* -pled, -pling, -ples. To depopulate.  
**dis-per-sal** (di-spū'r'sal) *n.* The act or process of dispersing or the condition of being dispersed: DISTRIBUTION.  
**dis-per-se** (di-spū'r's) *v.* -persed, -pers-ing, -pers-es. [ME *dispersen* < OFr. *disperser* < Lat. *dispersus*, p.p. of *dispergere*, to disperse: *dis*, apart + *spargere*, to scatter.] -*vt.* 1. To break up and scatter in various directions. 2. To cause to vanish or disappear: DISPEL. 3. To disseminate (e.g., knowledge). 4. To separate (light) into spectral rays. -*vi.* 1. To move or scatter in different directions. 2. To vanish: disappear <The fog dispersed by nine> -**dis-per'sant** *n.* -**dis-pers'ed-ly** (-spū'r'sid-lē) *adv.* -**dis-pers'er** *n.* -**dis-pers'i-ble** *adj.*  
**disperse system** *n.* A continuous medium containing dispersed entities of any size or state.  
**dis-per-sion** (di-spū'r'zhən, -shən) *n.* 1. a. The act or process of dispersing. b. The state of being dispersed. 2. Statistics. The degree of scatter of data, usu. about some mean or median value. 3. Physics. a. The separation of a complex wave into component parts according to a given characteristic, as wavelength or frequency. b. The separation of visible light into its color components by diffraction or refraction. 4. Chem. A suspension, as smog or homogenized milk, of solid, liquid, or gaseous particles, of colloidal size or larger, in a liquid, solid, or gaseous medium.  
**dis-per-sive** (di-spū'r'siv, -zīv) *adj.* Tending to disperse or become dispersed. -**dis-per'sive-ly** *adv.* -**dis-per'sive-ness** *n.*  
**dis-pir-it** (di-spīr'it) *vt.* -it-ed, -it-ing, -its. [D(İS-) + SPIRIT.] To lower in or deprive of spirit: DISHEARTEN.  
**dis-pir-it-ed** (di-spīr'i-tid) *adj.* Marked by low spirits: disheartened or dejected. -**dis-pir'it-ed-ly** *adv.*  
**dis-place** (di-plās') *vt.* -placed, -plac-ing, -plac-es. 1. To change the place or position of: REMOVE. 2. To take the place of: SUPPLANT. 3. To discharge from an office or position. 4. To cause a physical displacement of <water displaced by a ship> -**dis-place'a-ble** *adj.* -**dis-plac'er** *n.*  
**displaced person** *n.* One who has been driven from his or her homeland by war.  
**dis-place-ment** (di-plās'mənt) *n.* 1. The act of displacing or state of being displaced. 2. Chem. A reaction in which one kind of atom, molecule, or radical is removed from combination and replaced by another. 3. Physics. a. The weight or volume of a fluid displaced by a floating body, used esp. as a measurement of the weight or bulk of ships. b. A vector or the magnitude of a vector from the initial position to a subsequent position assumed by a body. 4. Psychoanal. The shifting of an emotional affect, as of anger, from an appropriate to a more acceptable object.  
**displacement ton** *n.* Naut. A unit for measuring the displacement of a ship afloat, equivalent to one long ton or approx. one cubic meter of salt water.  
**dis-play** (di-splā') *vt.* -played, -play-ing, -plays. [ME *displayen*, *displaen* < AN *despleier* < Med. Lat. *displicare* < Lat., to scatter: *dis*, apart + *placare*, to fold.] 1. To put forth for viewing: EXHIBIT. 2. To make noticeable: MANIFEST <displayed their know-how> 3. To exhibit ostentatiously: FLAUNT <display one's riches> 4. To be endowed with an identifiable form or character. 5. To express, as by gestures or bodily posture. 6. To spread out: UNFURL. -*n.* 1. The act of displaying, esp. a public exhibition. 2. A demonstration or manifestation <a display of genius> 3. Vulgar ostentation <made a display of their wealth> 4. An advertisement designed to catch the eye. 5. Computer Sci. A device that gives information in a visual form, as on a cathode-ray tube.  
**dis-please** (di-plēz') *v.* -pleased, -pleas-ing, -pleas-es. [ME *displezen* < OFr. *desplaisir* < VLat. \**displacere*: Lat. *dis* (reversal) + Lat. *placare*, to calm.] -*vt.* To cause annoyance or dissatisfaction to. -*vi.* To cause displeasure. -**dis-pleas'ing-ly** *adv.*  
**dis-pleas-ure** (di-plēzh'ər) *n.* 1. The condition or fact of being dis-

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i tie ir pier ò pot ò toe ò paw, for oi noise òò took

**fly-pa-per** (fli'pā'pər) *n.* Paper coated with a sticky, occas. poisonous substance to catch flies.

**fly-poi-son** (fli'poi'zən) *n.* A poisonous plant, *Amianthium muscaetoxicum* of the southeastern United States, having narrow basal leaves and a terminal cluster of small white or greenish flowers.

**fly-speck** (fli'spēk') *n.* 1. A small, dark speck or stain made by the excrement of a fly. 2. A minute spot.

**fly swatter** *n.* A device typically consisting of a flat square of plastic or wire mesh attached to a long handle and used to kill flies or other insects.

**fly-trap** (fli'trāp') *n.* 1. A trap for catching flies. 2. A plant, as the Venus's-flytrap, that traps insects.

**fly-weight** (fli'wāt') *n.* A boxer of the lightest weight class, weighing 112 pounds or less.

**fly-wheel** (fli'hwēl', -wēl') *n.* A heavy-rimmed rotating wheel used to minimize speed variation in a machine subject to fluctuation in drive and load.

**f** *fm* symbol for FERMIUM.

**f-num-ber** (f'num'bər) *n.* [F(OCAL LENGTH) + NUMBER.] The ratio of focal length to the effective aperture diameter in a lens or lens system.

**foal** (fōl) *n.* [ME *fole* < OE *fola*.] The young offspring of an equine animal, as a horse, esp. when under a year old. — *vi.* **foaled, foaling, foals.** To give birth to a foal.

**foam** (fōm) *n.* [ME *fom* < OE *fām*.] 1. a. A mass of gas bubbles in a liquid-film matrix, esp. a light, bubbly gas and liquid mass formed by agitating a liquid containing certain soaps or detergents. b. A thick chemically produced froth, as shaving cream or certain fire-fighting substances. 2. a. Frothy saliva from the mouth. b. The frothy sweat of an equine animal. 3. The sea. 4. Any of various light, bulky, more or less rigid materials used as thermal or mechanical insulators esp. in packaging and containers. — *vi.* **foamed, foaming, foams.** To form or cause to form foam. — **foam'ing-ly** *adv.*

**foam-flow-er** (fōm'flou'ər) *n.* A woodland plant, *Tiarella cordifolia* of eastern North America, with a narrow cluster of small white flowers.

**foam rubber** *n.* A light, firm, spongy rubber made by beating air into latex with subsequent curing and used as an upholstery material and insulating medium.

**foam-y** (fō'mē) *adj.* **-i-er, -i-est.** 1. Relating to or like foam. 2. Consisting of or covered with foam. — **foam'i-ly** *adv.* — **foam'i-ness** *n.*

**fob** (fōb) *n.* [Prob. of Germanic orig.] 1. A small pocket at the front waistline of a pair of trousers or in the front of a vest, used esp. to hold a watch. 2. A short chain or ribbon attached to a pocket watch and worn hanging in front of the vest or waist. 3. An ornament or seal attached to a watch chain.

**fob** (fōb) *vt.* **fobbed, fob-bing, fobs.** [ME *fobben* < *fob*, trickster, prob. < *fob*, froth.] 1. To dispose of (goods) by fraud or deception. 2. To put off by deceitful or evasive means.

**fo-cal** (fō'kəl) *adj.* 1. Of or relating to a focus. 2. Positioned at or measured from a focus. — **fo'cal-ly** *adv.*

**focal infection** *n.* A localized infection.

**fo-cal-ize** (fō'kə-līz') *vt.* **-iz-er, -iz-ing, -iz-es.** 1. To adjust or come to a focus. 2. To bring or be brought to a focus. 3. To localize. — **fo'cal-i-za'tion** *n.*

**focal length** *n.* The distance of a focal point from the surface of a lens or mirror.

**focal point** *n.* A point on the axis of symmetry of an optical system, as of a mirror or lens, to which parallel incident rays converge or from which they appear to diverge after passing through the system.

**fo-ci** (fō'si') *n.* *var. pl.* of FOCUS.

**fo-c's'le** (fōk'səl) *n.* *var.* of FORECASTLE.

**fo-cus** (fō'kəs) *n.* *pl.* **-cus-es or -ci** (-si') [NLat. < Lat., hearth.] 1. a. A focal point. b. Focal length. c. The distinctness or clarity with which an optical system renders an image. d. Adjustment for distinctness or clarity. 2. A center of interest or activity. 3. *Pathol.* The region of a localized bodily infection. 4. *Geol.* The point of origin of an earthquake. 5. *Math.* A point that together with a directrix determines a conic section. — *v.* **-cused, -cus-ing, -cus-es or -cussed, -cus-ing, -cus-ses.** — *vt.* 1. a. To produce a clear image of (e.g., photographed material) by adjustment of optical equipment, as a projection lens. b. To adjust (e.g., a lens) to produce a clear image. 2. To concentrate <focused all my attention on finishing the job> — *vi.* To converge at a point of focus. — **in focus.** Sharply or clearly defined: **DISTINCT.** — **out of focus.** Not sharply or clearly defined: **INDISTINCT.**

**fod-der** (fōd'ər) *n.* [ME < OE *fōdor*.] 1. Feed for livestock, often consisting of coarsely chopped stalks and leaves of corn mixed with hay. 2. a. Raw material, as for artistic creation. b. Masses of people considered as raw material for achieving a particular goal <cannon fodder> — *vt.* **-dered, -der-ing, -ders.** To feed with fodder.

**foe** (fō) *n.* [ME *fo* < OE *gefā*, *foe*, and *fāh*, hostile.] 1. A personal en-

emy. 2. A wartime enemy. 3. An opponent <a foe of tax increases> 4. One that opposes, injures, or impedes.

**foehn** also **föhn** (fōn, fān) *n.* [G. *Föhn* < OHG *phōno* < Lat. *favonius*, the west wind.] A warm, dry wind coming off the lee slopes of a mountain range.

**foe-tal** (fē'təl) *adj.* *var.* of FETAL.

**foe-tid** (fē'tid) *adj.* *var.* of FETID.

**foe-tor** (fē'tər) *n.* *var.* of FETOR.

**foe-tus** (fē'təs) *n.* *var.* of FETUS.

**fog** (fōg, fōg) *n.* [Perh. of Scand. orig.] 1. Condensed water vapor in cloudlike masses that lie close to the ground and limit visibility. 2. A mass of floating material, as dust or smoke, that forms an obscuring haze. 3. Mental confusion or bewilderment. 4. A dark blur on a developed photographic negative. — *v.* **fogged, fog-ging, fogs.** — *vt.* 1. To cover or envelop with or as if with fog. 2. To cause to be obscured: **BLUR.** 3. To make uncertain or unclear: **BEWILDER.** 4. To obscure or dim (a photographic negative) with a dark blur. — *vi.* 1. To be covered with or as if with fog. 2. To be blurred or obscured. 3. To be dimmed or obscured with a dark blur. — Used of a photographic print or negative.

**fog** (fōg, fōg) *n.* [ME *fogge*, tall grass.] 1. A second growth of grass appearing on a mown or grazed field. 2. Tall, decaying grass left standing after the cutting or grazing season.

**fog bank** *n.* An opaque mass of fog sharply defined in contrast to surrounding clearer air, esp. such a fog occurring at sea.

**fog-bound** (fōg'bound', fōg'-) *adj.* 1. Immobilized by heavy fog. 2. Clouded or obscured by fog.

**fog-bow** (fōg'bō', fōg'-) *n.* A faint white or yellowish arc-shaped light, similar to a rainbow, often seen opposite the sun in a fog bank.

**fog-dog** (fōg'dōg', fōg'dōg'-) *n.* A bright or clear spot in a fog bank.

**fo-gey** (fō'gē) *n.* *var.* of FOGY.

**fo-gy** (fō'gē, fōg'ē) *adj.* **-gi-er, -gi-est.** 1. a. Full of or covered by fog. b. Like fog. 2. Clouded or blurred: **INDISTINCT.** 3. Bewildered and perplexed. — **fo-gi-ly** *adv.* — **fo-gi-ness** *n.*

**fog-horn** (fōg'hōrn', fōg'-) *n.* 1. A horn used, as by ships, to sound warning signals in fog or darkness. 2. A resounding, insistent voice.

**fo-gy** also **fo-gey** (fō'gē) *n.* *pl.* **-gies** also **-geys.** [Orig. unknown.] A stodgy or old-fashioned person. — **fo-gy-ish** *adj.* — **fo-gy-ism** *n.*

**fōhn** (fōn, fān) *n.* *var.* of FOEHN.

**foi-ble** (fōi'bal) *n.* [Obs. Fr. < obs. *foible*, weak < OFr. *feble*. — see FEEBLE.] 1. A minor weakness or failing. 2. The weaker section of a sword blade, from the middle to the tip.

**foil** (fōil) *vt.* **foiled, foil-ing, foils.** [ME *foilen*, alteration of *fullen*, to trample, and *filen*, to pollute, defile.] 1. To prevent from being successful: **THWART.** 2. To obscure or confuse (a trail or scent) so as to evade pursuers. — *n.* 1. *Archaic.* A repulse: setback. 2. An animal's trail or scent.

**foil** (fōil) *n.* [ME < OFr. < Lat. *folium*, leaf.] 1. A thin, flexible leaf or sheet of metal. 2. A thin layer of bright metal placed under a displayed gem to lend it brilliance. 3. One that by strong contrast underscores the distinctive characteristics of another. 4. The metal coating applied to the back of a plate of glass to form a mirror. 5. A leaflike design or space worked in stone or glass, found esp. in Gothic window tracery. 6. *Naut.* A hydrofoil. — *vt.* **foiled, foil-ing, foils.** 1. To back or cover with foil. 2. To set off by contrast.

**foil** (fōil) *n.* [Orig. unknown.] 1. A fencing sword with a flat guard for the hand and a thin four-sided blade tipped with a blunt point to prevent injury. 2. *often foils.* The art of fencing with foils.

**foils-man** (fōilz'mən) *n.* One who fences with a foil: **FENCER.**

**foin** (fōin) *vi.* **fained, foin-ing, foins.** [ME *fōinen* < *fōine*, a thrust < OFr. *fōine*, three-pronged fish spear < Lat. *fusina*.] *Archaic.* To thrust with a pointed weapon. — **fōin** *n.*

**foi-son** (fōi'zən) *n.* [ME *foisoun* < OFr. *foison* < Lat. *fusio*, a pouring < *fusus*, p.p. of *fundere*, to pour.] 1. *Archaic.* A plentiful harvest. 2. *Scot.* Physical strength. 3. **foisons.** *Obs.* Reserves of power.

**foist** (fōist) *vt.* **foist-ed, foist-ing, foists.** [Dial. Du. *vuisten*, to introduce a palmed die surreptitiously < *vuist*, fist.] 1. To pass off as real, valuable, or worthy. 2. To impose upon another by coercion or trickery. 3. To insert fraudulently or deceitfully <foisted unfair provisions into the contract>

**fo-late** (fō'lāt') *n.* [FOL(IC ACID) + -ATE.] Folic acid.

**fold** (fōld) *v.* **fold-ed, fold-ing, folds.** [ME *folden* < OE *fealdan*.] — *vt.* 1. To bend over or double up so that one part lies on top of another part <fold a sheet of paper> 2. To make compact by successively bending over parts <folded up the cot> 3. To bring from an extended to a closed position <The eagle folded its wings> 4. To place together and intertwine <fold one's arms> 5. To clasp or intertwine: **EMBRACE.** 6. To mix in (a cooking ingredient) by slowly and gently turning one part over another <folded the egg whites into the batter> — *vi.* 1. To become folded. 2. *Informal.* To fail financially <Their business folded> 3. *Informal.* a. To give in: **YIELD.** b. To weaken or collapse from exertion. — *n.* 1. An act or instance of folding. 2. One part folded over another. 3. The space at the junction of two folded parts. 4. A hollow or dale in hilly or mountainous country. 5. *Geol.* A bend in a stratum of rock. 6. A coil, as of a snake. 7. *Anat.* A crease apparently formed by folding, as of a membrane. — **fold'-a-ble** *adj.*

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